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EXAMINER

SHIPPEN, MICHAEL L

ART UNIT	PAPER NUMBER
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1621

DATE MAILED: 09/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

**MAILED**

**SEP 09 2005**

**GROUP 1600**

Application Number: 10/721,669  
Filing Date: November 25, 2003  
Appellant(s): CIRJAK ET AL.

\_\_\_\_\_  
Wallace L. Oliver  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed August 4, 2005.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

Appeal No. 1999-1310 in U.S. Application Serial No. 08/703,805

Appeal No. 2003-2012 in U.S. Application Serial No. 09/981,454

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

No amendment after final has been filed.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

US 3,714,237	CALCAGNO	1-1973
GB 1,266,623	SENNEWALD	3-1972
GB 1,266,624	SENNEWALD	3-1972

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 16 and 18-28 stand rejected under 35 U.S.C. § 103 as being unpatentable over SENNEWALD (GB 1,266,623) and SENNEWALD (GB 1,266,624) optionally in view of CALCAGNO (USP 3,714,237). The primary references teach the claimed process except oxygen is not introduced in a further inlet. Whether oxygen is mixed with the other reactants prior to introduction into the reaction zone or added

separately appears to be merely an arbitrary choice. However, it would be readily apparent to one of ordinary skill in the art the ultimately desired results of all reactants being present in the reactor would be achieved regardless of whether oxygen is fed separately from or together with the ethylene and acetic acid reactants. One would still expect all reactants to undergo the same reaction whether the mixing occurs before the reaction zone or within the reaction zone. Moreover, it was apparently recognized in the acetoxylation art that oxygen can be added separately as suggested in the very similar process of CALCAGNO, note lines 4-9 of column 2. While CALCAGNO is not exactly the same process, it is clear from the reference that it was recognized in the vinyl acetate art that the oxygen can be supplied separately from the other feeds. No unexpected result is seen for supplying the oxygen separately at the same concentration as suggested in the prior art and applicants do not present any persuasive evidence that their process would afford any expected result when operating at the prior art oxygen feed rates. The claims read on the amount exemplified in the prior art, note Example 2 of the references uses 8% oxygen which is apparently within the claimed range.

The requirement that sufficient particulate catalyst be present to allow for dissipation of heat of reaction is not seen to require an amount that is any different from what is exemplified in the prior art. Merely reciting an inherent property of fluid bed catalysts does not define a catalyst that different from the prior art catalysts. The catalysts and all of its properties are one and the same regardless of whether the prior art recites all such properties.

**(10) Response to Argument**

It is believed that appellants' arguments have been adequately addressed in the rejection as set forth above. The following points are noted.

Appellants urge that the claimed invention allows for the introduction of more total oxygen in the reactor as compared with the prior art. While the claims may read on process that can be carried out at higher amounts of oxygen, it is not seen that the claims are limited to amounts that distinguish the claims from the prior art. The claims appear to read on the amount exemplified in the prior art, note Example 2 of the references uses 8% oxygen which is apparently within the claimed range. Note applicants' claims 26 and 28 indicate that the amount oxygen may be 8%. Also, note the top portion of page 9 of the specification that the amount may be 8%. Appellants dismiss this fact asserting the parent claims contain functional language as to flammability of the feeds and that dependent claims merely specify the total oxygen may be as low as 8% in a particular feed mixture rather the total oxygen is as low as 8%. However, appellants have failed to demonstrated that 8% is not within the claimed range. Moreover, appellants' position is inconsistent with the actual language of the claims. Claims 26 and 28 state "the oxygen in the *combined gaseous feeds* entering the reactor is between 8 to 25 volume percent" (*emphasis added*).

Appellants' assertion that rejection is based on "obvious to try" and improper hindsight is not seen. It must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time

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the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971). This is not a case of "obvious to try" because one would expect with certainty to obtain the results set forth in the prior art process. The fact that appellants may have discovered an inherent advantage in the modification at higher concentration of oxygen does not lessen the fact that there is motivation for one to make the modification at the concentrations of oxygen suggested in the prior art.

Appellants' assertion that even if a *prima facie* case of obviousness has been made that statements in the specification and the "Williams Declaration" establish advantages of separate feeds. Appellants rely upon statements in the specification as to the use of higher levels of oxygen. As pointed out above, while higher levels of oxygen may be used, it is considered that the claims still read on the use of levels that art not distinguished over the prior art. The "Williams Declaration" is not of record since appellants never submitted a copy for the record of the instant application. This is apparently in reference to the declaration specifically addressed by the Broad in their decision of Appeal No. 2003-2012 in U.S. Application Serial No. 09/981,454 starting on the bottom of page 4 of the attached copy. Such evidence would not be found persuasive for the same reasons set forth in said Broad decision.

As to the combination of references, appellants urge that there is no motivation to combine the references. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so

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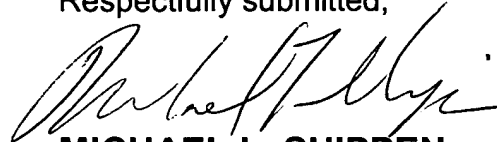
found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, CALCAGNO clearly shows that in the vinyl acetate manufacturing art it is known that it is unnecessary to combine the feeds prior to entering the reaction zone in very similar processes. CALCAGNO merely states the obvious. While one can point out distinctions between the respective processes such as vapor phase verse liquid phase, there are a variety of similarities. They both use the same reactants, they both afford the same products, they both involve fluidized catalysts system (one catalyst supported on an inert carrier that is fluidized the other having the catalyst suspended in a fluid, both processes use palladium catalysts, etc.). It is considered that the respective process are sufficiently similar that one skilled in the art would be familiar with both and one would expect features used in one (such as a separate oxygen feed) could be used in the other.

**(11) Related Proceeding(s) Appendix**

Copies of the court or Board decision(s) identified in the Related Appeals and Interferences section of this examiner's answer are provided herein.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,




**MICHAEL L. SHIPPEN**  
**Primary Examiner**  
**Art Unit 1621**

September 1, 2005

Conferees



**Samuel Barts**  
**Primary Examiner**  
**Art Unit 1621**



**Jafar Parsa**  
**Primary Examiner**  
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The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

MAILED

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

AUG 24 2004

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BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte LARRY M. CIRJAK, MICHAEL F. LEMANSKI,  
DAVID R. WAGNER, NANCY C. BENKALOWYCZ, PATRICIA R. BLUM,  
MARC A. PEPERA, and CHRISTOS PAPARIZOS

Appeal No. 1999-1310  
Application No. 08/703,805

ON BRIEF

Before KIMLIN, GARRIS, and WARREN, Administrative Patent Judges.  
GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal which involves claims 2-20.  
These are all of the claims remaining in the application.

The subject matter on appeal relates to a process for  
manufacturing vinyl acetate in a fluid bed reactor wherein the  
improvement comprises feeding ethylene and acetic acid into the

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Application No. 08/703,805

fluid bed reactor through one or more inlets and feeding an oxygen-containing gas stream into the fluid bed reactor through at least one further inlet. Further details of this appealed subject matter are set forth in representative independent claim 16 which reads as follows:

16. The process for manufacturing vinyl acetate in a fluid bed reactor in which an oxygen-containing gas, ethylene and acetic acid are reacted in the presence of a fluid bed catalyst material to produce vinyl acetate, wherein the improvement comprises feeding ethylene and acetic acid into said fluid bed reactor through one or more inlets, feeding an oxygen-containing gas stream into said fluid bed reactor through at least one further inlet provided that each of the streams fed to the reactor is outside its flammability limits, co-joining the oxygen-containing gas, ethylene and acetic acid while in contact with said fluid bed catalyst material in said fluid bed reactor to enable the ethylene, acetic acid and oxygen to react to produce vinyl acetate and recovering said vinyl acetate from said fluid bed reactor.

The references set forth below are relied upon by the examiner as evidence of obviousness:

Calcagno et al. (Calcagno)	3,714,237	Jan. 30, 1973
Sennewald et al. (Sennewald '623) (GB)	1 266 623	Mar. 15, 1972
Sennewald et al. (Sennewald '624) (GB)	1 266 624	Mar. 15, 1972

Claims 2-7 and 12-20 are rejected under 35 U.S.C. § 103 as being unpatentable over Sennewald '623 and Sennewald '624 optionally in view of Calcagno.

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Application No. 08/703,805

Claims 2-16 are rejected under 35 U.S.C. § 101 as claiming the same invention as claimed in application Serial No. 08/703,824 (which is a continuation of application Serial No. 08/375,762) which now has matured into Patent No. 5,710,318.

As indicated on page 3 of the brief and clarified on page 3 of the answer, dependent claims 13 and 17-20 have been grouped and argued separately from the other claims which have been rejected under 35 U.S.C. § 103. It follows that we will individually consider these separately grouped and argued claims in assessing the section 103 rejection before us. However, as correctly indicated by the examiner on page 3 of the answer and not contested by the appellants, claims 2-16 will stand or fall together with respect to the rejection under 35 U.S.C. § 101.

We refer to the brief and to the answer for a complete exposition of the contrary viewpoints expressed by the appellants and by the examiner concerning the above noted rejections.

#### OPINION

For the reasons set forth in the answer and below, we will sustain each of the rejections before us on this appeal.

We agree with the examiner that it would have been obvious for one with ordinary skill in the art to feed oxygen into the fluid bed reactor of the Sennewald references separately from the

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ethylene and acetic acid reactants. This is because the ultimately desired result of all three reactants being present in the reactor would be achieved regardless of whether the oxygen is fed separately from or together with the ethylene and acetic acid reactants. Moreover, this obviousness conclusion is reinforced by the Calcagno reference which expressly teaches feeding the reactants including oxygen separately or together in a vinyl acetate manufacturing process (e.g., see lines 3-9 in column 2).

The appellants argue that feeding oxygen separately as here claimed would not have been obvious because it is contrary to the common approach in the prior art and because it has several "unobvious" advantages associated with the capability of using higher oxygen concentrations than safely attainable if all reactants were fed as a mixture into the reactor. These arguments, even if supported by evidence (which they are not), cannot be regarded as persuasive. As properly indicated by the examiner in his answer, none of the separately grouped and argued claims under consideration in this rejection contain limitations concerning features such as the aforementioned higher oxygen concentrations of the type focused upon by the appellants' arguments.

We are also unpersuaded by the appellants' argument that Calcagno does not support the previously discussed conclusion of obviousness simply because patentee's vinyl acetate manufacturing process involves a liquid phase. Regardless of whether a liquid versus gas phase is involved, the Calcagno reference nevertheless evinces that it was known in the prior art to feed reactants including oxygen separately or in admixture. Plainly, such evidence supports the conclusion that it would have been obvious to separately feed the oxygen reactant in the vinyl acetate manufacturing process of the Sennewald references.

As for the appellants' arguments concerning the dependent claims directed to recovering and recycling catalyst, these arguments are unconvincing for the reasons expressed in the answer. Indeed, we note that the appellants have not even contested with any reasonable specificity the examiner's reasons for considering these claim requirements satisfied by the Sennewald references (i.e., see the paragraph bridging pages 7 and 8 of the answer). Similarly, notwithstanding the appellants' unembellished assertion to the contrary, we perceive merit in the examiner's position (see the last two paragraphs on page 8 of the answer) that the Sennewald references teach or at least would have suggested adding promotor (i.e., activator) to the Sennewald

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reactor directly or via a recycled catalyst as required by dependent claims 18-20. We consider the examiner's reasoning in support of his position to be well taken particularly since, again, the appellants have not contested this reasoning with any meaningful specificity.

In light of the foregoing and for the reasons expressed in the answer, we will sustain the examiner's section 103 rejection of claims 2-7 and 12-20 as being unpatentable over Sennewald '623 and Sennewald '624 optionally in view of Calcagno.

With respect to the section 101 rejection based on double patenting of the same invention type, the appellants (citing the test of In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970)) argue that "the practice of the process of the instant application does not necessarily infringe the claims of file wrapper continuation application 08/703,805 [now Patent No. 5,710,318] because one does not necessarily have to feed the ethylene and acetic acid into the reactor as a mixture [i.e., as recited in claim 1 of the patent]" (brief, page 9). In response, the examiner has pointed out that appealed dependent claim 2 expressly recites feeding the ethylene and acetic acid into the reactor as a gaseous mixture. Once again, the appellants have not advanced on the record before us any reasonably specific

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disagreement with the examiner's rationale. Thus, it is undisputed on the record of this appeal that at least one of the appealed claims under consideration in the section 101 rejection would necessarily be infringed by practice of (and thus is drawn to the same invention as) claim 1 of the applicants' Patent No. 5,710,318. For this reason and because the here rejected claims will stand or fall together as previously indicated, we will sustain the examiner's section 101 rejection of claims 2-16 based on double patenting of the same invention type over the claims of Patent No. 5,710,318.

The decision of the examiner is affirmed.

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Application No. 08/703,805

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

Edward C. Kimlin  
Administrative Patent Judge

Bradley R. Garris  
Administrative Patent Judge

BOARD OF PATENT  
APPEALS AND  
INTERFERENCES

Charles F. Warren  
Administrative Patent Judge

BRG:tdl

Appeal No. 1999-1310  
Application No. 08/703,805

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The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No: 16

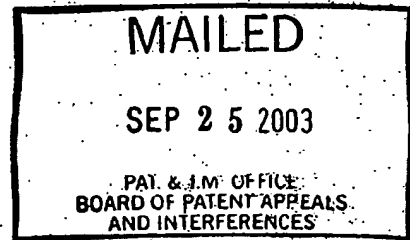
UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte LARRY M. CIRJAK, MICHAEL F. LEMANSKI, DAVID R. WAGNER,  
NANCY C. BENKALOWYCZ, PATRICIA R. BLUM, MARC A. PEPERA, and  
CHRISTOS PAPARIZOS

Appeal No. 2003-2012  
Application No. 09/981,454

ON BRIEF



Before KIMLIN, GARRIS, and WARREN, Administrative Patent Judges.  
GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal which involves claims 16-36.  
These are all of the claims remaining in the application.

The subject matter on appeal relates to a process for  
manufacturing vinyl acetate in a fluid-bed reactor wherein the  
hydrocarbon reactants are fed into the reactor separately from

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the oxygen reactant. Further details concerning this appealed subject matter are set forth in representative independent claim 16 which reads as follows:

16. A process to manufacture vinyl acetate in a fluid-bed reactor containing feed stream inlets and gas outlets, in which a mixture comprising ethylene, acetic acid and an oxygen-containing gas is contacted with a particulate fluid-bed catalyst, comprising:

(a) introducing feed to the reactor in more than one inlet such that a feed stream primarily containing ethylene, acetic acid, or a mixture thereof does not contain oxygen within flammability limits, and such that a feed stream primarily containing an oxygen-containing gas does not contain hydrocarbons within flammability limits;

(b) controlling the amount of oxygen entering the reactor such that the outlet gas mixture is outside flammability limits; and

(c) recovering vinyl acetate.

The references set forth below are relied upon by the examiner as evidence of obviousness:

Calcagno et al. (Calcagno)	3,714,237	Jan. 30, 1973
Sennewald et al. (Sennewald '623) (published Great Britain Patent Application)	1 266 623	Mar. 15, 1972
Sennewald et al. (Sennewald '624) (published Great Britain Patent Application)	1 266 624	Mar. 15, 1972

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Application No. 09/981,454

All of the appealed claims are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sennewald '623 and Sennewald '624 optionally in view of Calcagno.<sup>1</sup>

Rather than reiterate the respective positions advocated by the appellants and by the examiner regarding the above noted rejections, we refer to the brief and to the answer for a complete exposition thereof.

#### OPINION

For the reasons set forth in the answer and below, we will sustain each of these rejections.

As correctly indicated by the examiner, each of the Sennewald references discloses all aspects of the process defined by appealed independent claim 16 except for the here claimed feature wherein the oxygen reactant is introduced into the reactor separately from the ethylene and acetic acid reactants. However, we share the examiner's conclusion that it would have been obvious for one with ordinary skill in the art to introduce oxygen into the fluid bed reactor of the respective Sennewald

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<sup>1</sup>On page 3 of the brief, the appellants state that "[a]ll claims are in one group." In light of this statement, we will focus on independent claim 16 which is the broadest claim on appeal, in assessing the merits of the rejections before us. See 37 CFR § 1.192(c)(7)(2002).

processes separately from the ethylene and acetic acid reactants. This is because the reaction desired in the respective Sennewald processes would be achieved regardless of whether the oxygen is fed separately from or together with the ethylene and acetic acid reactants. Further, the above noted obviousness conclusion is additionally supported by the Calcagno reference which teaches a vinyl acetate manufacturing process wherein the reactants, namely, ethylene and oxygen, are introduced into the reactor either separately or mixed together (e.g., see lines 3-9 in column 2).

With respect to the rejection based on the Sennewald references alone, the appellants argue that the examiner has provided no evidence in support of his obviousness conclusion. This is incorrect. The examiner's obviousness conclusion is supported by his undisputed finding that one with ordinary skill in the art would have expected "all reactants to undergo the same reaction whether the mixing occurs before the reaction zone or within the reaction zone" (answer, page 3; also see the sentence bridging pages 3 and 4 of the first office action mailed January 2, 2002).

The appellants further argue that the examiner's conclusion of obviousness is militated against by the Williams declaration

of record which explains that, in the environment of a fixed-bed reactor process, separately introduced oxygen could cause hot spots and potentially dangerous overheating conditions. While such concerns might dissuade an artisan from introducing oxygen separately in the environment of a fixed-bed reactor process, these concerns would not have dissuaded the artisan from introducing oxygen separately in a fluid-bed reactor process of the type taught by each of the Sennewald references. This is because Sennewald explicitly teaches that dissipation of reaction heat is readily achieved in his fluidized-bed (e.g., see lines 32-36 on page 2 of Sennewald '623 and lines 47-51 on page 2 of Sennewald '624) as correctly pointed out by the examiner in the answer.<sup>2</sup> In light of this teaching that heat dissipation is readily achieved in Sennewald's fluidized-bed, the examiner's obviousness conclusion regarding Sennewald's fluidized-bed process would not be forestalled by the overheating concerns regarding a fixed-bed process.

It is the appellants' further contention that any prima facie case of obviousness established by the examiner is overcome

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<sup>2</sup>Significantly, the appellants have not responded to the examiner's point regarding this aspect of the Sennewald teachings.

by evidence of nonobviousness shown by the Williams declaration and the subject specification in relation to the advantage of separately introduced feed streams. In this regard, the appellants specifically refer to lines 12-20 on page 6 of their specification which states that "[t]his unique feature of the fluid bed process allows significantly higher levels of oxygen to be safely employed in the conversion of acetic acid and ethylene to vinyl acetate without danger of flammability" and that "[t]he utilization of higher levels of oxygen permit substantially higher levels of ethylene and acetic acid conversion than are possible in the fixed bed processes." The appellants' contention lacks persuasive merit.

We acknowledge that the fluidized-bed process under consideration yields higher levels of conversion than are possible in a fixed bed process and that such higher levels of conversion clearly are advantageous. Contrary to the appellants' belief, however, this advantage does not evince nonobviousness. This is because such higher conversion levels would have been expected for a fluidized bed process since each of the Sennewald references expressly teaches this advantage (e.g., see lines 8-16 on page 2 of Sennewald '623 and lines 19-51 on page 2 of Sennewald '624). Concerning this point, we emphasize to the

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appellants that expected results, as here, are evidence of obviousness just as unexpected results are evidence of nonobviousness. Viewed from this perspective, the advantage referred to by the appellants reinforces rather than undermines a conclusion of obviousness. See In re Skoll, 523 F.2d 1392, 1396-97, 187 USPQ 481, 484 (CCPA 1975) and In re Skoner, 517 F.2d 947, 950, 186 USPQ 80, 82 (CCPA 1975).

Concerning the Section 103 rejection based on the Sennewald references in view of Calcagno, the appellants reiterate the unpersuasive arguments discussed above. In addition, the appellants point out that the Calcagno process involves a liquid-phase system and that "feeding oxygen directly to a liquid[-]phase system would be an inherently safer system because of the heat transferability of the liquid" (brief, page 7). With these points in mind, the appellants then argue that "there is no apparent motivation to combine liquid-phase art [i.e., Calcagno] with the gas-phase art of Sennewald" (brief, page 7). We cannot agree. The proposed combination of the Sennewald and Calcagno teachings has merit, at least in the sense that Calcagno evinces that separate versus mixed reactant feeds were known alternatives in prior art vinyl acetate processes and thereby reinforces the examiner's obviousness conclusion based on the Sennewald

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references considered alone. Moreover, the appellants' statement that "feeding oxygen directly to a liquid[-]phase system [i.e., the system of Calcagno] would be an inherently safer system because of the heat transferability of the liquid" (id.) reinforces the examiner's previously discussed point and his concomitant obviousness conclusion regarding the Sennewald teaching that heat dissipation is readily achieved in the fluidized bed of the Sennewald process.

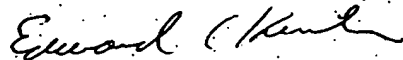
For the reasons discussed above and in the answer, it is our determination that the reference evidence adduced by the examiner establishes a prima facie case of obviousness which the appellants have failed to successfully overcome with argument and evidence of nonobviousness. See In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). It follows that we will sustain the examiner's Section 103 rejection of all appealed claims as being unpatentable over Sennewald '623 and Sennewald '624 optionally in view of Calcagno.

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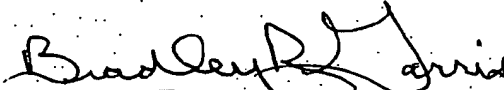
The decision of the examiner is affirmed.

No time period for taking any subsequent action in  
connection with this appeal may be extended under 37 CFR  
§ 1.136(a).

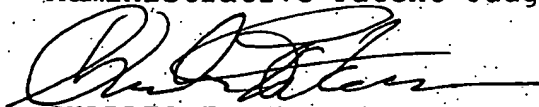
AFFIRMED



EDWARD C. KIMLIN  
Administrative Patent Judge



BRADLEY R. GARRIS  
Administrative Patent Judge



CHARLES F. WARREN  
Administrative Patent Judge

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Appeal No. 2003-2012  
Application No. 09/981,454

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